Successful Treatment of Pityriasis Rubra Pilaris with Ixekizumab

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Single Case

Successful Treatment of Pityriasis Rubra Pilaris with Ixekizumab

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Keywords
Pityriasis rubra pilaris · Ixekizumab · Successful treatment

Abstract
Pityriasis rubra pilaris is an inflammatory dermatologic disorder of unknown cause and often confounded with psoriasis. It is characterised by hyperkeratotic follicular papules, scaly erythematous plaques, palmoplantar keratoderma, and a progression to generalised erythroderma. Here, we report the case of a 68-year-old man with pityriasis rubra pilaris, who was successfully treated with ixekizumab, an interleukin-17A inhibitor.

Introduction

Pityriasis rubra pilaris (PRP) is a rare, chronic, inflammatory dermatosis with erythroderma and palmoplantar hyperkeratosis [1–3]. The major clinical differential diagnosis is psoriasis. However, in its most common form, type 1, PRP is typically self-limited and resolves within 3 years in 80% of all cases. Given its unclear aetiology, several systemic therapies such as retinoids, methotrexate, fumaric acid, cyclosporine A, and phototherapy (psoralen plus ultraviolet [UV] A [PUVA], narrowband UVB) are currently in use [2]. However,

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none has been proven to be efficacious in randomized controlled trials. Despite the "classical" therapies, individual case reports exist on the efficacy of biologicals (e.g., infliximab, adalimumab, efalizumab, ustekinumab, or secukinumab) in PRP patients [4–8].

Case Report

A 68-year-old man with a history of mild psoriasis presented as an outpatient with a "scaly rash" on his entire body. Comorbidities included coronary heart disease, hypertensive gastropathy, hepatic cirrhosis, and hypercholesterolemia.

A dermatological examination revealed a generalised, partly confluent, coarse-lamellar scaling exanthema on the trunk, with intensely erythematous scaly plaques on the extremities and a palmoplantar involvement (Fig. 1a, c). The nails of his fingers and toes exhibited oil drop signs and pits. Between the extensive infected areas of skin, we observed numerous areas of uninfected skin – so called "nappes claires" (Fig. 1c). A laboratory work-up was normal despite mildly elevated inflammatory parameters.

The patient was started on topical steroids in combination with a UVB phototherapy (311 nm). However, the suberythrodermia rapidly worsened requiring further inpatient treatment. Differential diagnosis included an exacerbation of psoriasis, atopic dermatitis, or pityriasis rubra pilaris.

Histologic analyses of skin biopsies showed alternations of orthokeratosis and parakeratosis in vertical and horizontal direction (checkerboard sign) without intracorneal accumulation of neutrophilic granulocytes (Fig. 1d). Together with the clinical picture, we diagnosed a PRP type 1.

Despite intensive topical therapy with corticosteroids and systemic retinoids (25 mg acitretin once daily), no satisfactory remission was achieved. The palmoplantar skin worsened further, with the formation of rhagades. Finally, we opted for an off-label use of ixekizumab, an interleukin-17A inhibitor. Already 2 weeks after the first injection, there was a distinct improvement in the appearance of the skin; and 4 weeks later, the skin had completely cleared of erythema and scaling (Fig. 1b).

Discussion

Therapy of PRP is mainly empirical and based on small case series and case reports as the result of the low incidence and unknown pathogenesis of PRP [3]. In a recent report, Feldmeyer et al. [9] characterised the expression profile of various cytokines in skin biopsies of PRP lesions. In line with the clinical similarities of PRP with psoriasis, the authors found a helper T cell 17 (Th17) and Th1 profile by mRNA expression analyses. Interestingly, clinical improvement was paralleled by a decrease in lesional Th17 cytokines during effective anti–IL-12/IL-23 therapy with ustekinumab [4, 9]. These data highlight the IL-23/IL-17 axis in the pathogenesis of PRP and serve as a rationale for blocking IL-17 in patients with PRP. However, despite the clinical and histopathological similarities of PRP and psoriasis, certain differences are well present. In contrast to psoriasis skin, PRP lesions are abundant of neutrophils. Furthermore, the clinical picture and course of disease often differs between PRP and psoriasis [3].

In our case, we report the successful treatment of PRP with an interleukin-17A inhibitor, namely ixekuzumab. Already 2 weeks after the first injection, our patient's skin improved significantly, and most of the plaques had disappeared.

Ixekizumab binds to interleukin-17A and, thus, inhibits the proliferation and activation of keratinocytes. Furthermore, the production of other cytokines and prostaglandins and the activation of CD4-positive cells are interrupted, which explains the anti-inflammatory effect and the treatment success in PRP patients. Based on our case report, ixekizumab might represent an additional therapeutic option for patients with therapy-resistant PRP. Additional well-controlled studies are necessary to investigate the role of ixekizumab as a potential treatment option for PRP.

Statement of Ethics

The patient has given his informed consent for the publication of his case.

Disclosure Statement

The publication of this paper has no direct or indirect financial implication for the authors, their relatives, or their institution.

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Fig. 1. Clinical images of the pityriasis rubra pilaris patient before (week 0, **a**) and 2 weeks after initiation of anti–interleukin-17 treatment (with ixekizumab, **b**) show a rapid improvement. **c** Reddish follicular papules with islands of normal skin (nappes claires). **d** Histopathologic images of lesional skin sample. Alternation of orthokeratosis and parakeratosis in vertical and horizontal direction (checkerboard sign) without intracorneal accumulation of neutrophilic granulocytes. The epidermis shows hyperplasia with unevenly long broad rete ridges accompanied with thickened suprapapillary plates and preserved granular zone. Mild perivascular infiltrate in the superficial dermis (haematoxylin & eosin-stained section).